

ABSTRACT OF THE DISCLOSURE

A thermal management system for a vehicle includes a heat exchanger having a thermal energy storage material provided therein, a first coolant loop thermally coupled to an electro-chemical storage device located within the first coolant loop and to the heat exchanger, and a second coolant loop thermally coupled to the heat exchanger. The first and second coolant loops are configured to carry distinct thermal energy transfer media. The thermal management system also includes an interface configured to facilitate transfer of heat generated by an internal combustion engine to the heat exchanger via the second coolant loop in order to selectively deliver the heat to the electro-chemical storage device. Thermal management methods are also provided.